REMARKS

This Amendment is in response to the Final Office Action mailed November 22, 2005. Claims 1-10 are pending, claims 1 and 5 have been amended.

In paragraphs 4-5 of the Office Action, claim 8 is rejected under 35 U.S.C. § 112 as failing to comply with the enablement requirement. Upon review of the Article 34 Amendment, sheet 12/1, it appears that the original text of claim 8 is missing from this sheet. Claim 8 has been amended to add the original text of the claim from sheets 16 and 17 of the originally filed PCT application, pages which the Article 34 Amendment did not replace, as noted by the Examiner. This claim, as amended, now recites the original published text (*i.e.*, WO00/27042), and overcomes the Examiner's rejection on this ground. *See* 37 C.F.R. § 1.57.

In paragraphs 6-7 of the Office Action, the Examiner rejects claims 1, 3 and 5-8 under 35 U.S.C. § 103(a) as being unpatentable over Applicants admitted prior art (AAPA) in view of U.S. Patent No. 5,912,876 to H'mimy. The Examiner's rejection on this ground is respectfully traversed.

Among the limitations of independent claims 1 and 5, as amended, which are neither disclosed nor suggested in the art of record is the requirement that the apparatus comprises an equalization filter that equalizes "spread spectrum signals based on the frequency response of the plurality of radio channels" to eliminate radio channel distortion.

H'mimy does not disclose an equalization filter as claimed. H'mimy discloses a method for channel response estimation of an orthogonal frequency division multiplexing

(OFDM) signal, and correction of that signal by reducing additive white Gaussian noise (AWGN) *in a single transmission channel*. With reference to Fig. 1, in the disclosed method, both a coded, modulated main signal (ref. no. 32, carrying the data) and a coded pilot signal (ref. no. 30) are combined (i.e., multiplexed, ref. no. 40). The received pilot signal is decoded (ref. no. 85), and then the frequency response of the channel is estimated from the decoded pilot signal (ref. no. 90). Subsequently, the decoded main signal (as output by accumulator, ref. no. 80) is multiplied by the inverse of the estimated channel response (ref. no. 95). H'mimy expressly suggests that the "source of error in estimating the channel frequency response signal is the AWGN." (Col. 4, 11. 39-40). Accordingly, H'mimy does not teach or suggest an equalization filter that equalizes spread spectrum signals in a plurality of channels, and thus does not solve the problem of reducing interference generated from other frequency distorted, coded signals, because the decoded signal is equalized, not the spread spectrum signals.

In the present invention, radio transmission channel frequency distortion is eliminated by equalizing spread spectrum signals based on the frequency response of the radio transmission channels. Interference from other coded channels is eliminated when the main signal is decoded from the equalized signal spectrum. In the absence of any disclosure or suggestion of this claimed feature of the invention, independent claims 1 and 5 are believed to be in condition for allowance.

Among the limitations recited in independent claim 3 which are neither disclosed nor suggested in the art of record are the requirements of "demodulating independently each of said modulated signals which pass through a plurality of said radio channels of which delay times are different" and "combining the demodulation results, which is characterized in that an output with higher communication quality is selected

among the outputs by said equalizing and independently demodulating steps." Claim 6 and 8 contain similar limitations.

As explained above, H'mimy Fig. 1 discloses a method for channel response estimation of an orthogonal frequency division multiplexing (OFDM) signal, and correction of that signal by reducing additive white Gaussian noise (AWGN) *in a single transmission channel*. In addition, H'mimy Fig. 2 discloses mitigating "the consequences of fast variation" in the transmission channel. Neither embodiment depicted in Figs. 1 and 2 of H'mimy is relating to reducing distortion from multipath fading, *i.e.*, "where signals pass through a plurality of . . . radio channels of which delay times are different."

Furthermore, H'mimy fails to disclose combining demodulation results from two different receiving units, as claimed by claims 3, 6 and 8. The cited portions of H'mimy teach the "selection of the proper estimated main signal subsequence within the list of possible transmitted subsequences." (Col. 2, ll. 46-48). While this selection is based on a metric "used to select the proper subsequence that is very close to the received signal at this time," (col. 5, l. 38) it is not a selection of "an output with higher communication quality selected among the outputs" of different demodulators. In the absence of any disclosure or suggestion of this feature of the invention, independent claims 3, 6 and 8 are believed to be in condition for allowance.

Among the limitations recited in independent claim 7 which are neither disclosed nor suggested in the art of record is "an equalization filter unit having frequency characteristics that are inverse from that of said radio channels, by using tap coefficients from said channel estimation unit."

As stated above, neither embodiment disclosed or taught by H'mimy concerns mitigating multipath fading. Thus, H'mimy does not disclose or teach an equalizer that utilizes tap coefficients. The portion of H'mimy cited as disclosing tap coefficients, "e.g., select signals, see FIG. 2," simply does not disclose tap coefficients. As expressly stated in H'mimy, "[t]he matrix m_i [is] used to select the proper output sequence from memory 125 . . . " (Col. 5, 1.42). The Office Action fails to explain how such a matrix becomes tap coefficients used in an equalizer. H'mimy uses this matrix to determine which demodulated, decoded signal subsequence is most likely the proper one. Therefore, in the absence of any disclosure or suggestion of this feature of the invention, independent claim 7 is believed to be in condition for allowance.

With respect to the rejection of claims 2, 4, 9 and 10 in paragraphs 8-9 of all Office Action, these claims depend from independent claims 1 and 3, and include all the limitations found therein, and are therefore allowable for at least the same reasons.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

By_____

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